

ABSTRACT

The present invention provides processes and equipments for safely and easily preparing an F₂-containing gas, as well as processes and equipments for surface modification using the F₂-containing gas prepared.

According to the present invention, a gas containing a fluoro compound that is easier to handle than F₂ is supplied and the fluoro compound is excited and decomposed to convert it into F₂ gas before surface modification and then used for surface modification. According to the present invention, there is no necessity of providing, storing and transporting a large amount of F₂ gas in advance because a necessary amount of F₂ gas is obtained immediately before surface modification.

A process for preparing an F₂-containing gas comprises the steps of exciting at least one fluoro compound in a fluoro compound-containing gas by conferring energy on the fluoro compound-containing gas under reduced pressure; and partially or completely converting the excited fluoro compound-containing gas containing the excited fluoro compound into F₂ under normal pressure or overpressure.